

REMARKS

The Examiner has examined Claims 1-28. Applicant notes, however, that Claims 16-28 were cancelled at the time of filing. However, since the Examiner has examined such claims, applicant wishes to now prosecute the same, and has entered such claims hereinabove, and responded to the rejection thereof hereinbelow. Any fees that are due in connection with this action may be charged to Deposit Account No. 50-1351 (Order No. NVIDP030A).

The Examiner is thanked for the indication of allowable subject matter.

The Examiner has rejected Claims 1-4, 9-12, and 15 under 35 U.S.C. 101 as claiming the same invention as that of Claims 1-4, 5-8, and 9 respectively of prior U.S. Patent No. 6,593,923. Such rejection has been rendered moot by virtue of the clarifications made hereinabove to the claims.

The Examiner has further rejected Claims 17, 18, 20, 21, 23, 24, 26, and 27 under 35 U.S.C. 101 as claiming the same invention as that of Claims 7, 8, 9, 10, 17, 18, 19, and 20 respectively of prior U.S. Patent No. 6,690,372. Such rejection has also been rendered moot by virtue of the clarifications made hereinabove to the claims.

The Examiner has also rejected Claims 16, 19, 22, 25, and 28 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1, 9, 11, 19, and 21 respectively of U.S. Patent No. 6,690,372. Such rejection has been avoided by way of the terminal disclaimer submitted herewith with respect to U.S. Patent Nos. 6,690,372 & 6,593,923.

The Examiner has rejected Claims 16, 19, 22, 25, and 28 under 35 U.S.C. 102(b) as being anticipated by Whitted, An Improved Illumination Model for Shaded Display,

ACM, 1980. Applicant respectfully disagrees with such rejection, especially in view of the amendments made hereinabove.

For example, the Examiner relies on the following excerpt from Whitted to make a prior art showing of applicant's claimed "performing a first shading calculation in order to generate output" (see Claims 16, 22, and 28 – now Claims 29, 35, and 41).

"To accurately render a two-dimensional image of a three-dimensional scene, global illumination information that affects the intensity of each pixel of the image must be known at the time the intensity is calculated. In a simplified form, this information is stored in a tree of "rays" extending from the viewer to the first surface encountered and from there to other surfaces and to the light sources. A visible surface algorithm creates this tree for each pixel of the display and passes it to the shader. The shader then traverses the tree to determine the intensity of the light received by the viewer. Consideration of all of these factors allows the shader to accurately simulate true reflection, shadows, and refraction, as well as the effects simulated by conventional shaders. Anti-aliasing is included as an integral part of the visibility calculations. Surfaces displayed include curved as well as polygonal surfaces." (see Abstract)

Specifically, the Examiner relies on the suggestion of the "global illumination information" to meet applicant's claimed "performing a first shading calculation in order to generate output." The mere use of global illumination, however, in no way suggests the performance of a first shading calculation. As admitted by the Examiner, Whitted's global illumination information is passed to the shader, thus suggesting that the global illumination is not the product of "performing a first shading calculation," as claimed.

Still yet, the Examiner has dismissed applicant's claimed "graphics pipeline" in the preamble of Claims 29, 35, and 41. In response, applicant has emphasized the unique context of applicant's claim elements: Specifically, now claimed is "performing a first shading calculation in order to generate output utilizing a graphics pipeline" and "performing a second shading calculation using the output in order to generate further

output utilizing the graphics pipeline" (emphasis added – see Claims 29, 35, and 41).

Only applicant teaches and claims a technique for overcoming the inflexibility with prior art graphics pipelines, through use of the dual shading calculations, as claimed.

The Examiner is reminded that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. Of California*, 814 F.2d 628, 631; 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Moreover, the identical invention must be shown in as complete detail as contained in the claim. *Richardson v. Suzuki Motor Co.* 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim.

This criterion has simply not been met by the Whitted reference, especially in view of the amendments made hereinabove. A notice of allowance or a specific prior art showing of each of the claim elements, in combination with the remaining claim elements, is respectfully requested.

Still yet, applicant brings to the Examiner's attention the following dependent claims that have been added, which include the following subject matter presented for consideration:

"wherein the shading calculations involve shadow modulation" (see Claim 42);

"wherein the shadow modulation involves more than one function" (see Claim 43); and

"wherein the first and second shading calculations involve decoupled variables" (see Claim 44).

A notice of allowance or a specific prior art showing of all of applicant's claim limitations, in combination with the remaining claim elements, is respectfully requested.

To this end, all of the independent claims are deemed allowable. Moreover, the remaining dependent claims are further deemed allowable, in view of their dependence on such independent claims.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 505-5100. If any fees are due in connection with the filing of this paper, then the Commissioner is authorized to charge such fees to Deposit Account No. 50-1351 (Order No. NVIDP030A).

Respectfully submitted,

Kevin A. Zilka
Registration No. 41,429

P.O. Box 721120
San Jose, CA 95172
Telephone: (408) 505-5100

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.